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September 15, 1892.

North Carolina

Agricultural Experiment Station,

Bulletin No. 87.

ALL PUBLICATIONS OF THE STATION, FROM MARCH, 1877, TO SEPTEMBER, 1892.

Publications will be sent to any address in North Carolina upon application.

N. C. COLLEGE OF AGRICULTURE AND MECHANIC ARTS

NORTH CAROLINA

AGRICULTURAL EXPERIMENT STATION

AND STATE WEATHER SERVICE.

UNDER THE CONTROL OF THE

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To describe in detail the different classes of publications issued by the N. C. Agricultural Experiment Station, as well as to mention the various subjects treated in the bulletins and reports of the Station from its foundation, in March, 1877, to the present time, this bulletin is sent out. Where the edition of any publication is exhausted it is so marked. The publications of the Station are free to residents of North Carolina and to libraries and scientific exchanges. To others a small charge is asked. The number on hand of the later regular bulletins and the technical bulletins is sufficient to supply a limited number of applications.

H. B. BATTLE, *Director.*

PUBLICATIONS

OF THE

N. C. AGRICULTURAL EXPERIMENT STATION,

MARCH, 1877, TO AUGUST, 1892.

A. BULLETINS.—*Regular.* Each edition 14,000 to 18,000 copies. For popular reading, with scientific terms avoided as far as possible. Numbered consecutively 82, 83, 84, etc. Sent to all names on the Station mailing list. Last issued is No. 87.

B. BULLETINS.—*Technical.* Each edition 3,000 copies. Numbered consecutively 1, 2, 3, etc.; also with corresponding number according to date of issue, 77b, 80c, etc. Sent only to scientific list and exchanges. Summaries of these issues appear in regular Bulletins. Last issued was number 3—80c.

C. BULLETINS.—*Meteorological Division* (*State Weather Service*). Each edition 600 copies. Numbered consecutively 1, 2, 3, etc.; also with corresponding number, according to date of issue, 75c, 78a, 80d, etc. Sent only to meteorological list and to exchanges. Subject matter is mainly meteorological data of various stations in North Carolina. Last issued was No. 34—87a.

D. BULLETINS.—*Special.* Each edition varying in number from 500 to 60,000 copies. For special purposes, as the demand requires. Numbered consecutively 1, 2, etc.; also with corresponding number, according to number of regular issue, 80a, etc. Sent only to special names, as occasion demands. Last issue was No. 11—86b.

E. BULLETINS.—*Weekly Weather Crop.* Each edition 1,100 copies. Numbered consecutively 1, 2, 3, etc., during the year of issue. Printed during 1888, 1889, 1890, 1891 and 1892. Gives weekly the effect of the weather upon crops during the growing season. Sent only to the crop bulletin list and exchanges. Not sent except upon special request. Last issue was No. 23, 1892.

F. BULLETINS.—*Press.* Each edition 550 copies. Numbered consecutively 1, 2, 3, etc. Short reading articles for newspaper columns. First number published May 24, 1890. Sent to newspaper exchanges and to chairmen of experimental committees of Alliances and Granges. Last issue was No. 36.

G. ANNUAL REPORTS OF THE STATION. Each edition 3,000 copies Numbered consecutively with years, 1–1878, 2–1879, 3–1880 etc. Prior to 1888 these reports contained result of the year's work, and took the place of the separate bulletins which appeared thereafter. The annual reports now are of routine character, and do not generally embrace matters not included in the several bulletins. Sent to exchanges only, and not to general mailing list. Last issue was 14th for 1891.

H. ANNUAL REPORTS OF THE METEOROLOGICAL DIVISION, *constituting the State Weather Service.* Each edition 2,000 to 4,000 copies. Numbered consecutively with years, 1–1887, 2–1888, 3–1889, etc. Includes monthly and annual means of meteorological data at various stations in North Carolina, with other records made and work done during the year. Sent to meteorological exchange list only. Last issue was 5th annual for 1891, which is published as "Climatology of North Carolina."

I. BIENNIAL REPORTS *of the N. C. Agricultural Experiment Station* to the Governor of North Carolina for transmission to the General Assembly. Each edition 500 to 3,000 copies: Numbered consecutively First, Second, etc. These reports are demanded by local authorities, and are not intended for general distribution. Last issue was Sixth Biennial Report for the years 1889–'90.

Summaries of the Subject Matter of Various Publications from 1877 to 1892.

A. BULLETINS.—REGULAR.

Nos. 1–56.—Appeared from 1877 to 1888. *Edition exhausted.*
Were not issued regularly at stated intervals, or numbered consecutively. Contributions from the Station also appeared regularly during this time in the monthly bulletin of the N. C. Department of Agriculture. Following is a list of bulletins, with subjects and dates, excluding all circulars, directions and forms:

Directions for Making Vinegar. 1878. 4 pages.
Analyses and Valuations of Fertilizers. 1877–'78. 30 pages.
Ville's Formula for Composting, and others, furnished by Dr. A. R. Ledoux. 1878. 16 pages.
The Sugar-beet in North Carolina. 1878. 50 pages.
Silica vs. Ammonia. Results of comparative soil-tests of Poplein's Silicated Phosphate with a number of ammoniated guanos. 1878. 24 pages.
Analyses and Valuations of Fertilizers for 1877 and 1878. Republished 1879. 16 pages.
Report of the Director to the Legislature, January, 1879. Document No. 8. 16 pages.
Analyses and Valuations of Fertilizers for 1879. 8 pages.
Formula for Composting. 1879. 16 pages.
Report to the Legislature, January, 1881.
Value of Active Ingredients of Fertilizers. Bulletin for February, 1881.
The Use of Agricultural Chemicals. Bulletin for March, 1881.
Analyses and Valuations of Fertilizers. 2d edition. 1881. 12 pages.
Trade in Fertilizers; Extension in Cotton Culture. Bulletin for January, 1882.
Home-made Manures; High Manuring on Cotton. Bulletin for February, 1882.
Does Cotton Exhaust? Cotton-seed and its Uses. Bulletin for March, 1882.
Stable Manure Saved and Composted; Rice Products as a Feeding Stuff. Bulletin for April, 1882.
Analyses of Fertilizers. 1882. 8 pages.
Experience with Home-made Manures. Bulletin for June, 1882.
Report of Work Done for the State Board of Health. 1881. 8 pages.
Treatment of Cotton Lands; Station at State Fair. Bulletin for October, 1882.
Horn, Leather and Wool Waste, and Fertilizers Made from Them. 1882. 10 pages.
Finely-ground Phosphates, or "Floats." 1882. 10 pages.
On Kainit. 1882. 28 pages.
Rice and its Products; Food and Fodder Plants. Bulletin for May, 1882.
The Soja Bean; Waste Products of Tobacco Factories. Bulletin for May, 1883.
Analyses of Fertilizers. 1883. 16 pages.
Cotton-seed and its Products. Bulletin for June, 1883.
N. C. Resources for Commercial Fertilizers—
1. Ammoniates.
2. Potash Sources. Bulletin for December, 1883.
3. Phosphates. Bulletin for January, 1884.
The Trade in Fertilizers During 1883. 12 pages.
Cost of Ingredients of Fertilizers. Bulletin for February, 1884.
The Phosphate Investigation. Bulletin for March, 1884.
Analyses of Fertilizers. Season of 1884. 16 pages.
Composition of North Carolina Phosphates. Bulletin for April, 1884.
North Carolina Phosphates, Report on. 26 pages.
Analyses of Fertilizers. Season of 1885. 16 pages.
Analyses of Fertilizers. 2d edition.
Analyses of Fertilizers, Additional. Fall, 1885. A circular. 2 pages.
Analyses of Composts, etc, A bulletin. 2 pages.
Injurious Insects, and Diseases of Stock. A Bulletin. 2 pages.
Instructions for Voluntary Observers and Displaymen. 24 pages.

Formula for Composts. September, 1887. 4 pages.
Report of North Carolina Weather Service for 1887. 37 pages.
Composts, and Ingredients Composing Them. 24 pages.

No. 57.—June, 1888. 8 pp.

INTRODUCTORY.—Plan of future Bulletins described. FIELD EXPERIMENTS.—Field tests described. The unreliability of soil analyses by chemical means. Need of field tests. SPECIAL NOTICE. SCOPE OF WORK AT STATION.

No. 58.—July, 1888. 16 pp.

DETAILS OF FIELD EXPERIMENTS NOW IN OPERATION.—Objects. Superintendents conducting the experiments in 19 counties. Instructions and plans of the experiments. Prices and analysis of the fertilizing ingredients. Amount of application and cost. EXAMINATION OF NORTH CAROLINA DRINKING WATERS. Value of chemical analysis of potable waters. Terms used. Analysis of 13 samples, mainly suspected waters. METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JUNE, 1888. Meteorological data from voluntary and signal service observers in 25 localities in the State, taken in June, 1888. IMPORTANT ANNOUNCEMENT.—Scope of work at Station largely increased by help of the Hatch Act. Outlines for the future in agricultural, botanical and entomological work.

No. 59.—August–September, 1888. 12 pp.

PURITY AND VITALITY OF SEEDS.—Introductory in regard to seed analyses. Tests of 9 samples of grass and clover seed sold in North Carolina. METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JULY AND AUGUST, 1888. Meteorological data from voluntary and signal service observers in 17 localities, taken in July and August, 1888,

No. 60.—October–November, 1888. 16 pp.

INTRODUCTORY.—In regard to forage plants. LUCERNE.—Its value as a forage crop, with cuts; composition. METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, SEPTEMBER AND OCTOBER, 1888. Data furnished by voluntary and signal service observers in 14 localities, taken September and October, 1888.

No. 61.—December, 1888, January, 1889. 32 pp. *Edition exhausted.*

COMPOSTS: FORMULAS, ANALYSES AND VALUE.—Formulas, analyses and value. Stable manure. Preservation of manure. Impacted manure. Manure heap. Decomposition of bones. Value of waste materials. Composition of 57 fertilizing materials. Formulas for farm manures; for cotton and corn; for wheat, oats, or rye; for tobacco. METHOD OF PRACTICAL FARMERS.—27 testimonies from Eastern District. Central District, 31 testimonies. Western District, 22 testimonies. Analysis of 20 home-made mixtures.

No. 61½.—February 12, 1889. 4 pp.

FERTILIZER ANALYSES, PARTIAL LIST.—Analyses of 27 samples. SEED EXAMINATION FOR PLANTERS.—Form for sending seed samples.

No. 62.—February 28, 1889. 16 pp.

FERTILIZER ANALYSES, *and the Fertilizer Control. Season* 1889.—Digest of fertilizer laws in force in North Carolina, 1889. List of 75 licensed brands in North Carolina. Analyses of fertilizers. Explanation of tables, with 109 analyses of fertilizers on sale.

No. 62½. 2d edition of 62.—March 27, 1889. 16 pp. *Edition exhausted.*

FERTILIZER ANALYSES, *and the Fertilizer Control, Season of* 1889.—Digest of fertilizer laws of 1889. Value of ingredients. List of 77 brands licensed for sale in North Carolina, with manufacturer or agent, etc. Explanation of tables. Tables giving analyses of 128 samples of fertilizers on sale.

No. 63.—June, 1889. 16 pp.

TEST OF SEEDS.—With special reference to the vitality of old seed. Identification and test of 47 samples. RUST ON WHEAT AND COTTON. LABORATORY NOTES.—Does stable manure, on drying, lose any of its ammonia? Additional analyses of 5 commercial fertilizers. Pamunkey Marl Phosphate.

No. 64.—July, 1889. 20 pp. *Edition exhausted.*

PRACTICAL STOCK FEEDING ON SCIENTIFIC PRINCIPLES.—Together with its relations to chemistry. Principle and application. Chemistry of cattle foods. Value of fodder ingredients in the animal economy. Feeding standard, with tables giving amount of food ingredients required by different animals under certain conditions. Composition of most common North Carolina fodders. Explanation of tables.

No. 65.—August–September, 1889. 44 pp.

CO-OPERATIVE FIELD TESTS DURING 1888.—*Field Experiments.* Unreliability of soil analyses by chemical means. Details of the field experiments. List of 21 farmers conducting experiments. Plan of experiments. Copy of instructions for conducting experiments with various fertilizing ingredients. Prices and analyses of the fertilizing ingredients. Diagram showing experimental plats and applications upon them. Amount of application and cost. *Results of Co-operative Field Experiments,* 1888.—Experiments with peanuts. Experiments with different fertilizers on peanuts. Field experiments with Spanish peanuts, and experiments with fertilizers on Spanish peanuts. Field experiments with potatoes, corn and cotton, each conducted in several localities.

No. 66.—September 15, 1889. 16 pp.

STOCK FEEDING AS PRACTICED IN NORTH CAROLINA. *Introductory.*—Reports from farmers of the State as to amount of feeding stuff for animals. INDIAN CORN.—History and cultivation.

No. 67.—October 15, 1889. 16 pp. *Ed. exhausted.* (*See Tech. Bul. No.* 1.)

SEED TESTS. *Introductory.*—Analyses of samples of seeds purchased from different dealers, with discussion as to their merits.

No. 68.—November 1, 1889. 8 pp. *Edition exhausted.*

FARM AND DAIRY BUILDINGS.—Description, with cuts. *Experimental Dairy House.*—Description and cuts.

No. 69.—February 26, 1890. 16 pp.

FERTILIZER ANALYSES, *and the Fertilizer Control, Season of* 1890.—Digest of fertilizer laws in force in North Carolina, 1890. Price of fertilizer constituents. List of 68 brands licensed for sale in North Carolina, with manufacturer's or agent's name, and expiration of license. Freight rates from seaboard to interior points. Analyses of 37 samples of fertilizers.

No. 69 (2d edition).—April 3, 1890. 16 pp.

FERTILIZER ANALYSES, *and the Fertilizer Control. Season of* 1890.—Digest of fertilizer laws in force in North Carolina, with prices of fertilizer ingredients. List of 68 brands of fertilizers licensed in the State, with name of manufacturer or agent, and date of expiration of license. Freight rates from seaboard to interior points. Analyses of 91 samples of fertilizers.

No. 69 (3d edition).—April 14, 1890. 16 pp.

FERTILIZER ANALYSES, *and the Fertilizer Control, Season of* 1890.—Digest of fertilizer laws in force in North Carolina, and value of fertilizer ingredients. List of 68 brands licensed for sale in North Carolina, with manufacturer or agent, and date of expiration of license. Freight rates from the seaboard to interior points. Analyses of 113 fertilizer samples.

No. 70.—April 15, 1890. 32 pp.

THE WEED PESTS OF THE FARM.—Damage done to North Carolina annually by these pests. Description of most troublesome weeds, and manner of exterminating them, with cuts. JAPAN CLOVER.—*Its Value as a Renovator of Worn Soils.* FUNGOUS DISEASES OF PLANTS.

No. 71.—May 15, 1890. 32 pp.

CO-OPERATIVE FIELD TESTS DURING 1889.—Objects and methods for Tests. Names of 24 experimenters. Results of co-operative field tests, season of 1889. Five experiments with corn, and results. Summary of experiments with corn, season of 1889. One experiment with wheat. Nine experiments

with cotton. Summary of results of experiments with cotton, season of 1889. HILL-SIDE DITCHES.—Construction, with cuts.

No. 72.—June 1, 1890. 16 pp.

THE WORK OF THE HORTICULTURAL DIVISION.—Aim and outline of work now in progress. List of fruit trees being grown at Experiment Station. VALUE OF PEA-VINE MANURING FOR WHEAT.—Test with pea-vines and without pea-vines. Result.

No. 73.—October 15, 1890. 100 pp.

THE BEST AGRICULTURAL GRASSES. *Introductory.*—Leading Grasses and Clovers; 29 species, with cuts. Forage Plants of Minor Importance; 16 species, with cuts. Tables, with discussion. Flowering period, use, etc., of grasses. Seeds. Proximate composition and feeding value of hays, 14 to 14.3 per cent. water. Digestion co-efficients. Dry substances contained in 2,000 pounds air-dry hay containing 14 to 14.3 per cent. water. The Theoretical Value of Hay. The Quality of Commercial Grass and Clover Seed. Seed and Seed Adulteration, with cuts. Mixtures vs. Pure Sowings of Grasses. The Rational Mixing of Grass and Clover Seeds. The Use and Value of Grass Gardens and Experimental Plats. Manures for Grasses. Diseases and Insect Enemies of Grasses and Clovers. Formulas for Mixtures. Permanent Pasture. Temporary Pasture. Permanent Meadow. Temporary Meadow. Special Formulas. Discussion of formulas for pastures and meadows. Index.

No. 74.—December 31, 1890. 20 pp.

TEST OF GARDEN VEGETABLES.—Sweet Potatoes, 13 varieties. Peas, 45 varieties. Irish Potatoes, 17 varieties. Tomatoes, 39 varieties. Early and late Cabbage. Table Corn. FRUITS.—Strawberries, Raspberries, Blackberries, Grapes, Figs. ORNAMENTAL PLANTING. THE CULTURE OF FIGS.—Propagation of Cuttings. Protecting Fig Trees in Cold Localities.

No. 75 (1st edition.)—March 16. 1891. 8 pp.

FERTILIZER ANALYSES, *and the Fertilizer Control, Season of* 1891.—Digest of Fertilizer Laws in force in North Carolina, including changes by Legislature of 1891. Valuation of Ingredients of Fertilizers, and Analyses of 47 Samples of Fertilizers. Freight Rates from Seaboard to Interior Points.

No. 75 (2d edition). April 15, 1891. 16 pp

FERTILIZER ANALYSES, *and the Fertilizer Control. Season of* 1891.—Digest of Fertilizer Laws in force in North Carolina, with changes by Legislature of 1891. Valuation of Fertilizer Ingredients for 1891. Freight Rates from Seaboard to Interior Points. Analyses of 110 Samples of Fertilizers.

No. 76. March 1891. 20 pp. *Edition exhausted.*

PLANT DISEASES AND HOW TO COMBAT THEM.—Successful Treatment of Fungi, and Preventive. Seven formulas for preparing remedies. Spraying apparatus, with cuts. Monetary value of spraying. Thirteen special diseases, and their remedies.

No. 77.—May 1, 1891. 8 pp.

VALUE OF PEA-VINE MANURING FOR WHEAT.—Experiments with seven plats of Wheat with pea-vines and seven without pea-vines, with kinds of fertilizer and amounts, for 1889-'90; cut, taken from photograph, showing the result. Same experiment for 1888-'89. Conclusions.

No. 78.—July 10, 1891. 32 pp.

SOME INJURIOUS INSECTS. *Introductory.*—Formulas. Ten formulas for different insects. Spraying machines, with cuts of best sprayers. Insects Injurious to Cotton, with their Remedies. Insects Injurious to Tobacco, and Remedies. Insects Injurious to Corn, and Remedies. Insects Injurious to Wheat and Oats, and Remedies. Insects Injurious to Garden Vegetables, and Remedies. Insects Injurious to Fruit, and Remedies. Some Beneficial Insects Cuts of insects throughout the bulletin.

No. 79.—July 20, 1891. 24 pp.

PREFACE. FACTS FOR FARMERS.—The Air. The Soil. Water Plants. Where Plants Get Food. How Plants Get Food from the Air. How Plants Get

Food from the Soil. How Plants Construct their Stems, Branches and Roots. What Food do Plants get from the Soil. What is Manure. Farming vs. Planting. Taking Care of Home-made Manures. Sources of Fertilizers. Lime, and its Uses.

No. 80.—October 1, 1891. 18 pp.

SILOS AND ENSILAGE.—Best Crop for the Silo. Difficulties. Size and Location of Silo. Construction of Silo, with cuts. Cost of Silo. Instructions for Using Silo. Appendix, with cuts.

No. 81.—December 15, 1891. 28 pp.

FEEDING COTTON-SEED HULLS AND MEAL FOR THE PRODUCTION OF BEEF.—*Cotton-seed Hulls and Meal for Steers.* Digestible constituents of cotton-seed hulls and meal. Tables giving feeding experiments with four steers. *Feeding Cotton-seed Hulls and Meal for the Production of Beef.* Plan of experiment. Tables giving experiments and results with four cattle from November, 1890, to January, 1891. *Second Experiment in Fattening Stock on Cotton-seed Hulls and Meal,* 1891, with tables as above. *Feeding of Cotton-seed Hulls and Meal in Warm Weather. Summary of Results thus far Obtained in these Feeding Experiments. Practical Tests of the Digestibility of Cotton-seed Hulls and Meal.*

No. 82.—January 15, 1892. 20 pp.

FERTILIZER ANALYSES, AND THE FERTILIZER CONTROL, *with all Analyses made in the Spring and Fall of* 1891.—Fertilizer Ingredients and Valuation. Digest of Fertilizer Laws in North Carolina in 1892. Freight Rates from Seaboard to Interior Points. Analyses of 232 samples of Fertilizers taken and analyzed during the year 1891.

No. 83.—February 19, 1892. 20 pp.

INTRODUCTORY. GROWING CELERY IN THE SOUTH.—Raising Plants. Transplanting. The Planting Board. Cultivation and After-treatment. CULTIVATION OF ONIONS.—Treatment of the Onion Crop. Varieties. NOTES OF HORTICULTURAL WORK DURING 1891.—Garden Vegetables: Peas; Garden Corn; Tomatoes; Irish Potatoes; Lettuce; Radishes. Small Fruits: Strawberries; Raspberries and Blackberries. Gooseberries and Currants. Grapes. Figs. Japanese Oranges.

No. 84.—April 21, 1892. 26 pp.

SOME ENEMIES OF TRUCK AND GARDEN CROPS.—Introductory Note. *Fungicides and Insecticides.* Formulas: How to use them. Sprayers (cuts). *Fungi, Insects and Remedies.* Beans. Cabbage. Celery. Strawberry. Tomatoes. *Appendix.* Insects beneficial to truck and other crops. *Index.*

No. 85.—April 26, 1892. 10 pp.

THE LATE CROP OF IRISH POTATOES IN THE SOUTH —Planting and cultivation of the late crop. Points to observe. Best seed, etc. Opinions of truckers.

No. 86.—May 2, 1892. 32 pp.

TOBACCO CURING BY THE LEAF CURE ON WIRE AND STALK PROCESSES.—Comparative test. Outline of the cultivation of tobacco. Curing tobacco by the old-style stalk process. Leaf-curing process on wires. Plan of the experiment. *Leaf-cure Process for Curing Tobacco.* First priming and curing from the leaf-cure plat. Second priming and curing from the leaf-cure plat. Third and last priming, etc. *Stalk-cure Process for Curing Tobacco.* Grading the tobacco. Value of tobacco from two processes. *Conclusions.*

No. 87.—September 15, 1892. 32 pp.

PUBLICATIONS OF THE N. C. AGRICULTURAL EXPERIMENT STATION, FROM MARCH, 1877, TO SEPTEMBER, 1892.—Detailed summaries of the various classes of bulletins and reports of the Station, with their contents, issued from its foundation to the present time. The present bulletin.

B. BULLETINS.—Technical.

No. 1 (67a).—October 15, 1889. 32 pp.

Introductory Note. Seed Tests.—Importance of purity of seeds, and need for steps to be taken to protect the farmer. Tables giving tests as to purity and vitality of some 500 samples of seeds, with discussion.

No. 2 (77b).—July 1, 1891. 12 pp.

Cause and Prevention of the Injury to Foliage by Arsenites.—Injury due to presence of soluble arsenic compounds, and prevented by lime. Tables showing results. A Cheap Arsenite. Combining Arsenites with Fungicides. Experiments with arsenites in Bordeaux Mixture, in Eau Celeste, in Eau Celeste modified with soda, and in Kerosene Emulsion. Conclusions.

No. 3 (80c).—October 30, 1891. 16 pp.

Digestibility of Cotton-seed Hulls.—Object and method of such work. Data collected at the stable. Tables showing stable record. Waste hulls and solid excrement, with per cent. of water and dry matter; percentage composition; nutrients consumed and excreted; percentage digested. Digestibility of a Ration of Cotton-seed Hulls and Cotton seed Meal, with tables and results of experiments. Comparison of Composition and Digestibility of Wheat-straw and Cotton seed Hulls.—Tables and detail of tests. Fertilizing Constituents Recovered in Manure in These Experiments, with tables showing results of experiments.

C. BULLETINS.—Meteorological Division State Weather Service.)

No. 1 (68a).—November 15, 1889. 8 pp.

Monthly Meteorological Summary for North Carolina, October, 1889.—Containing barometric pressure, air temperature, precipitation, relative humidity, winds, weather, thunder-storms, halos, frosts; notes from various localities, percentage of verification of weather forecasts. State maps showing mean temperature and total precipitation. Also, the isothermal lines, tables giving summary of reports from 35 local observers; precipitation for October, 1889, and daily mean temperatures.

No. 2 (68b).—December, 1889. 12 pp.

Monthly Meteorological Summary for North Carolina, November, 1889.—Containing barometric pressure, air temperature, precipitation, relative humidity, winds, weather, thunder-storms, halos, frosts; notes from various localities. State maps showing total precipitation at stations in North Carolina; and also isothermal lines. Tables giving summary of reports from 35 local observers; daily mean temperatures and precipitation for November. List of Meteorological Stations of the State Weather Service. Display stations.

No. 3 (68c).—January, 1890. 12 pp.

Monthly Meteorological Summary for North Carolina, December, 1889.—Containing barometric pressure, air temperature, precipitation, relative humidity, wind, weather, halos, frosts, notes, per cent. of verification of weather forecasts. State maps giving isothermal lines, and showing normal temperature; total precipitation at stations in North Carolina. Tables showing comparisons for December, 1887, 1888 and 1889; monthly summary of reports from 31 local observers; daily maximum temperatures, daily minimum temperatures, daily mean temperatures; daily precipitation.

No. 4 (69a).—February, 1890. 16 pp.

Monthly Meteorological Summary for North Carolina, January, 1890.—Contents similar to No. 3. Monthly summaries from 33 observers.

No. 5 (69b).—March, 1890. 16 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, FEBRUARY, 1890. —Contents similar to No. 3. Monthly summaries from 31 observers.

Nos. 6 and 7 (70a).—June, 1890. 32 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MARCH, 1890.— Contents similar to No. 3. Monthly summaries from 30 observers.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, APRIL, 1890.— Similar to No. 3. Monthly summaries from 30 observers.

No. 8 (72a).—July, 1890. 20 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MAY, 1890.— Contents similar to No. 3. Monthly summmaries from 35 observers. TORNADOES.—Tables giving number and history of tornadoes for 65 years.

No. 9 (72b).—July, 1890. 16 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JUNE, 1890.— Contents similar to No. 3. Monthly summaries from 37 observers.

Nos. 10 and 11 (72c).—September, 1890. 32 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JULY, 1890.— Contents similar to No. 3. Monthly summaries from 34 observers.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, AUGUST, 1890.— Contents similar to No. 3. Monthly summaries from 35 observers. THE FORMATION AND CLASSIFICATION OF CLOUDS.

No. 12 (73a).—October 15, 1890. 16 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, SEPTEMBER, 1890. —Contents similar to No. 3. Monthly summaries from 37 observers.

Nos. 13 and 14 (73b).—December, 1890. 36 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA. OCTOBER, 1890.— Contents similar to No. 3. Monthly summaries from 37 observers.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, NOVEMBER, 1890. —Contents similar to No. 3. Monthly summaries from 37 observers. ORIGIN OF COLD WAVES.

No. 15 (74a).—December 31, 1890. 18 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, DECEMBER, 1890. —Contents similar to No. 3. Monthly summaries from 31 observers.

No. 16 (74b).—January 31, 1891. 16 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA. JANUARY, 1891.— Contents similar to No. 3. Monthly summaries for 28 observers.

Nos. 17 and 18 (75c).—April 28, 1891. 32 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, FEBRUARY, 1891. —Contents similar to No. 3. Monthly summaries from 31 observers.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MARCH, 1891.— Contents similar to No. 3. Monthly summaries from 31 observers.

Nos. 19 and 20 (78a).—July, 1891. 34 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, APRIL, 1891.— Contents similar to No. 3. Monthly summaries from 35 observers.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MAY, 1891.— Contents similar to No. 3. Monthly summaries from 42 observers.

Nos. 21 and 22 (79a).—August 15, 1891. 34 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JUNE, 1891.— Contents similar to No. 3. Monthly summaries from 42 observers.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JULY, 1891.— Contents similar to No. 3. Monthly summaries from 42 observers.

No. 23 (80b).—September 15, 1891. 18 pp.

MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, AUGUST, 1891.— Contents similar to No. 3. Monthly summaries from 42 observers.

No. 24 (80d).—October 15, 1891. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, SEPTEMBER, 1891. —Contents similar to No. 3. Monthly summaries from 43 observers.

No. 25 (80e).—November 15, 1891. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA OCTOBER, 1891.— Contents similar to No. 3. Monthly summaries from 41 observers.

Nos. 26 and 27 (81a),—December 31, 1891. 32 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, NOVEMBER, 1891. —Contents similar to No. 3. Monthly summaries from 40 observers.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, DECEMBER, 1891. —Contents similar to No. 3. Monthly summaries from 37 observers.

No. 28 (83a).—February 20, 1892. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JANUARY, 1892 — Contents similar to No. 3. Monthly summaries from 36 observers.

No. 29 (83d).—March 29, 1892. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, FEBRUARY, 1892. —Contents similar to No. 3. Monthly summaries from 37 observers.

No. 30 (85a).—April 27, 1892. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MARCH, 1892.— Contents similar to No. 3. Monthly summaries from 39 observers.

No. 31 (86a).—May 30, 1892. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, APRIL, 1892.— Contents similar to No. 3. Monthly summaries from 48 observers.

No. 32 (86c).—June 30, 1892. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, MAY, 1892.— Contents similar to No. 3. Monthly summaries from 50 observers.

No. 33 (86d).—July 31, 1892. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JUNE, 1892.— Contents similar to No. 3. Monthly summaries from 49 observers.

No. 34 (87a).—August 20, 1892. 16 pp.
MONTHLY METEOROLOGICAL SUMMARY FOR NORTH CAROLINA, JULY, 1892.— Contents similar to No. 3. Monthly summaries from 51 observers.

D. BULLETINS. SPECIAL.

No. 1 (77a).—May 15, 1891. 556 pp. *Edition exhausted.*
DISEASES OF THE HORSE.—A special report by the Bureau of Animal Industry, U. S. Department of Agriculture.

No. 2 (80a).—October 1, 1891. 28 pp.
SYNOPSIS OF THE PUBLISHED WORK OF THE BOTANICAL AND ENTOMOLOGICAL DIVISIONS OF THE EXPERIMENT STATION.—The Quality of Commercial Seed. Weed Pests of the Farm. Fungous Diseases of Plants. Grass and Forage Plants. Mixtures vs. Pure Sowings of Grasses. Formulas for Grass Mixtures. Injurious Insects.

No. 3 (80b).—October 1, 1891. 8 pp.
ILLUSTRATIVE EXHIBIT OF THE N. C. EXPERIMENT STATION AT THE SOUTHERN EXPOSITION, RALEIGH, N. C., OCTOBER AND NOVEMBER, 1891.—Outline of Exhibit. *Section A.*—General Purposes and Results of Experiment Stations. *Section B.*—Distinctive Operations: Chemical, Botanical, Agricultural, Entomological, Horticultural, Meteorological, Branch Stations, Publications, etc. *Section C.*—Descriptive Sketch of Results Accomplished by the N. C. Agricultural Experiment Station.

No. 4 (82a).—February 13, 1892. 10 pp.

FERTILIZER ANALYSES FOR 1892. FIRST BI-WEEKLY EDITION.—Valuation of ingredients for 1892, and digest of fertilizer laws in operation. Freight rates from Savannah to interior. Analyses of 30 official samples of fertilizers.

No 5 (82b).—February 27, 1892. 12 pp.

FERTILIZER ANALYSES FOR 1892. SECOND BI-WEEKLY EDITION.—Contents similar to No. 4. 61 samples analyzed by the Fertilizer Control.

No. 6 (83b).—March 12, 1892. 12 pp.

FERTILIZER ANALYSES FOR 1892. THIRD BI-WEEKLY EDITION.—Contents similar to No. 4. 103 samples analyzed by the Fertilizer Control.

No. 7 (83c).—March 26, 1892. 16 pp.

FERTILIZER ANALYSES FOR 1892. FOURTH BI-WEEKLY EDITION.—Contents similar to No. 4. 143 samples analyzed by the Fertilizer Control.

No. 8 (83e).—April 16, 1892. 16 pp.

FERTILIZER ANALYSES FOR 1892. FIFTH BI-WEEKLY EDITION.—Contents similar to No. 4. 171 samples analyzed by the Fertilizer Control.

No. 9 (86b).—June 15, 1892. 16 pp.

FERTILIZER ANALYSES FOR 1892. SIXTH BI-WEEKLY EDITION.—Contents similar to No. 4. 203 samples analyzed by the Fertilizer Control.

E. BULLETINS.—WEEKLY WEATHER CROP.

1888. Nos. 1-24.—June 2, 1888-October 20, 1888. 1 p. each.

WEEKLY WEATHER CROP BULLETIN.—Published each Saturday, containing rainfall, the amount, effect on all staple crops in different localities, etc. Temperature and practice. Remarks taken from correspondence of crop reporters as to the condition of crops, etc., in the Eastern, Middle and Western sections of the State. 54 reporters on the list during the year, representing 46 of the 96 counties in the State.

1889. Nos. 1-24.—May 4, 1889-October 11, 1889. 2 pp.

WEEKLY WEATHER CROP BULLETIN.—Published every Saturday. General summary of reports for the State. Reports of the various crops from Eastern, Middle and Western Districts. Remarks of special correspondents as to condition of crops, and effect of weather, etc. Map of North Carolina giving division of State into districts, showing R. R., etc. 80 reporters on the list during the year, representing 57 of the 96 counties.

1890. Nos. 1-25.—April 25, 1890-October 11, 1890. 1 p. each.

WEEKLY WEATHER CROP BULLETIN.—Summary same as for 1889, except much fuller. 100 reporters on the list during the year, representing 70 of the 96 counties.

1891. Nos. 1-25.—April 24, 1891-October 9, 1891. 1 p. each.

WEEKLY WEATHER CROP BULLETIN.—Summary still more complete. Percentages used with explanation. Otherwise same as for former year. 325 reporters on the list during the year, representing 80 of the 96 counties.

1892. Nos. 1-23, &c.—April 9, 1892-September 12, 1892. 1 p. each.

WEEKLY WEATHER CROP BULLETIN.—Summary similar to that for 1891. Date of issue changed from Saturday to Monday afternoon to accommodate State newspapers. 370 reporters on the list during the year, representing 84 of the 96 counties.

F. BULLETINS.—PRESS.

No. 1.—May 24, 1890. 1 p.
Articles: What is the Use of an Experiment Station? Cow-peas for Wheat; Grapes at N. C. Experiment Station; Value of Japan Clover.

No. 2.—June 6, 1890. 1 p.
Articles: The Hessian Fly; The Weather and the Farmer; Imported Butter; Strawberries at the N. C. Experiment Station; Station Bulletins; North Carolina Climate.

No. 3.—June 13, 1890. 1 p.
Articles: Does it Pay to Fatten Stock with Cotton-seed Hulls and Meal? Fertilizers for Corn; Kill the Cotton and Tobacco Moths; Grapes and the Black Rot.

No. 4.—June 20, 1890. 1 p.
Articles: Fig Culture in North Carolina; Practical Value of Weather Indications; Success with Lucerne.

No. 5.—June 27, 1890. 1 p.
Articles: Tornadoes; Does Wheat Ever Turn to Chess? Sweet Potatoes.

No. 6.—July 10, 1890. 1 p.
Articles: Blackberries; How Rain is Formed; Sumac, its Value and Manner of Curing. Notices.

No. 7.—July 17, 1890. 1 p.
Articles: Kerosene for Killing Bugs and Worms; Tomatoes at the Station; Cotton-stalks for Stock Food.

No. 8.—September 11, 1890. 1 p.
Articles: Vegetables at the Experiment Station; Corn Smut; Exchange of Cotton-seed for Meal; Experiment Station Publications.

No. 9.—September 19, 1890. 1 p.
Articles: Money in Apples; Native Grasses; The Value of Cotton-seed.

No. 10.—September 25, 1890. 1 p.
Articles: Sub-Stations of the N. C. Experiment Station; Crimson Clover; Figs; Native Grown vs. Imported Hay.

No. 11.—October 30, 1890. 1 p.
Articles: A Wasteful Practice; Our Native Grasses; Peaches.

No. 12.—November 13, 1890. 1 p.
Articles: Cost of Feed for Working Teams; "In Time of Peace Prepare for War;" How to Guard Against Insects, etc.; September Weather; Points to be Observed in Planting a Peach Orchard.

No. 13.—November 20, 1890. 1 p.
Articles: Improve Your Stock; Setting Out a Peach Orchard; Potato Blight and its Remedy.

No. 14.—December 11, 1890. 1 p.
Articles: Make Your Composts; Rear Calves Only from the Best Cows; The Cow-pea as a Money-making Crop; Early Peas.

No. 15.—January 8, 1891. 1 p.
Articles: A Cheap Complete Fertilizer; Combining Arsenites with Fungicides; Shelter and Food for Stock; Raise Your Calves on Skim-milk.

No. 16.—January 29, 1891. 1 p.
Articles: Digest of New Fertilizer Laws; Fertilizer Analyses; Test Your Seed; Notes.

No. 17.—February 12, 1891. 1 p.
Articles: Grass is King; Teaching the Calves to Drink; The Late Crop of Irish Potatoes; Cold Waves.

No. 18.—February 19, 1891 1 p.
Articles: Care of Stock; Bulletin No. 73; Clean up the Fields; Figs.

No. 19.—April 30, 1891. 1 p.
Articles: Something to Think About; Cultivate Blackberries; Diseases of the Horse; Black Knot.

No. 20.—May 21, 1891. 1 p.
Articles: Nitrogen Manuring for Wheat; Bush Lima Beans; Supports for Climbers; Potato Bugs.

No. 21.—September 10, 1891. 1 p.
Articles: Co-operation, with the Farmers; The N. C. Experiment Station at the Southern Exposition; Injurious Insects; Pea-vine manuring.

No. 22.—October 29, 1891. 1 p.
Articles: How to Preserve Irish Potatoes; Tile-draining Farm Lands.

No. 23.—November 14, 1891. 1 p.
Articles: Figs at the N. C. Experiment Station.

No. 24.—January 6, 1892. 1 p.
Articles: Care of Stock in Winter; Facts for Farmers; A Cheap Complete Fertilizer; Peach Rot; Fire at N. C. Experiment Station Farm; Fertilizer Analyses.

No. 25.—January 13, 1892. 1 p.
Articles: Silos and Ensilage; Make Your Composts; Fertilizer Analyses; Will Stock Fatten Faster Loose or Tied Up? Strawberry Blight.

No. 26.—January 29, 1892. 1 p.
Articles: Cost of Feed for Working Teams; Seed and Plant Distribution; Burn and be Clean. Special Bulletin.

No. 27.—February 16, 1892. 1 p.
Articles: Best Sorghum for Molasses, Syrup or Sugar; Test Your Seeds; Grapes at N. C. Experiment Station; The Present Seed Law in North Carolina.

No. 28.—May 31, 1892. 1 p.
Articles: Broom Corn; Garden Pests; Potato Bugs; Cultivation and Soil Moisture.

No. 29.—June 16, 1892. 1 p.
Articles: Testing Cows; A Test of Cows in One Dairy.

No. 30.—June 24, 1982. 1 p.
Articles: Lice on Fowls and Animals; Raising Lambs.

No. 31.—July 22, 1892. 1 p.
Articles: Feeding Steers; Grape Crop of 1892; Shipping Figs.

No. 32.—July 23, 1892. 1 p.
Articles: Cheese-making.

No. 33.—July 29, 1892. 1 p.
Articles: Fertilizing Vineyards; Irish Potatoes; The Comparative Value of Cured Tobacco upon the Stalk and the Leaf-cure Upon Wire.

No. 34.—August 29, 1892. 1 p.
Article: Late Potatoes.

No. 35.—August 29, 1892. 1 p.
Article: Preserving Early Crop of Potatoes.

No. 36.—September 8, 1892. 1 p.
Article: Pea and Bean Weevils.

G. ANNUAL REPORTS OF THE STATION.

Nos. 1 and 2.—Report of the Station for 1878 and 1879. 200 pp. *Edition exhausted.*

REPORT OF DIRECTOR.—History of Station. Detailed Report. Correspondence of Station. Composting. Field Experiments. The Sugar Beet in North Carolina. Analyses of Pine Straw. The Cow-pea. Cotton-seed Oil Mills. Marls. Mineral and Well Water. Minerals and Ores. Miscellaneous Chemicals and Fertilizers. Analyses of Chemicals. Fertilizer Analyses. Analyses and Valuation of 28 Fertilizers for 1877; 40 for 1878, and 45 for 1879. Improvement in Fertilizer. List of brands that have paid the tax for 1879.

No. 3.—Report of the Station for 1880. 148 pp. *Edition exhausted.*

REPORT OF DIRECTOR.—Laws Establishing the Station. History of Station continued. Detailed Report of Work. Chemicals and Fertilizers. Fertilizer Control, and Detailed Analyses of 48 Samples. Marls of North Carolina. Analyses for State Board of Health. Mineral Waters. Field Experiments. Soil Analyses. Minerals, Ores, and Miscellaneous. Composting. Correspondence. Fish Offal and Fat-backs.

No. 4.—Report of the Station for 1881. 172 pp.

REPORT OF DIRECTOR.—Introductory. Laws Establishing the Station. Historical Sketch. The Fertilizer Control. Commercial Fertilizers in 1881. Table of 58 Analyses and Valuation of Fertilizers. List of Brands with Taxes Paid. Materials of Home-made Fertilizers. Average Composition of Fertilizing Materials. Some Home-made Fertilizers. How to Prepare and Apply Home-made Manures. Miscellaneous Analyses of Fertilizers. The Chemistry of Cotton. Field Experiments. Manures for Different Crops. Seed Examination. Jute. Work for the State Board of Health. Analyses of Drinking Waters. Index.

No. 5.—Report of the Station for 1882. 150 pp.

REPORT OF DIRECTOR.—Laws Establishing Station, and Controlling Fertilizer Trade. Work of the Station, its Needs and Opportunities. The Fertilizer Control. Analyses of 82 Fertilizers in 1882. List of Fertilizers licensed for 1882. Horn, Leather and Wool Waste. Finely Ground Phosphates, or "Floats." Product of the Duc Mill. Kainite. Home-made Manures and Composts. By-products of the Rice Industry. The Cotton-seed and its Products. Peruvian Guano. Miscellaneous Fertilizers. Refuse of Tobacco Factories. Nitrogenous Materials used in Fertilizers. The Soja Bean. Some Fodder Plants. Ensilage. Mineral Waters. Silos and Experiments. Index.

No. 6.—Report of the Station for 1883. 104 pp.

REPORT OF THE DIRECTOR.—Publications of the Station. Work of the Station During the Year. Laws Establishing the Station and Controlling the Fertilizer Trade. The Fertilizer Control, and the Fertilizer Trade During 1883. 89 Analyses of Commercial Fertilizers. Agricultural Chemicals and Home-made Fertilizers. North Carolina Resources for Commercial Fertilizers. Phosphates. Phosphatic Conglomerate and Lime. Sources of Nitrogen. Sources of Potash. Analyses of Feeding Stuffs. Analyses of Marls. Appendix. Cysticercus Cellulosa in Hogs. The Fisheries of North Carolina as a Source of Fertilizer Material. Index.

No. 7.—Report of the Station for 1884. 104 pp.

REPORT OF DIRECTOR.—Announcement. Directions for Sending Samples. Publications of Station. Work of the Station During the Year. Laws Establishing and Regulating the Station. The Fertilizer Control. 75 Analyses of Brands of Fertilizers for 1884. The Phosphate Exploration. List of Phosphate Beds Explored, with Analyses of Phosphate, Marls and Limestones. N. C. Superphosphate from Native Phosphates. Analyses of Soils. Miscellaneous Fertilizing Materials. Index.

No. 8.—Report of the Station for 1885. 112 pp. *Edition exhausted.*

REPORT OF DIRECTOR.—Announcement. Directions for Sending Samples. Publications of Station. Establishment of Experiment Farm. Fertilizer Control, and the Trade. 82 Analyses of Fertilizers for 1885. Miscellaneous Fertilizers. Home-made Fertilizers. Soil Analyses. Marls. Analyses of Marl Samples. Phosphates. Pyrites. Report of Pyrites in N. C. Explorations. General Consideration. Index. Map of Principal Deposits in State.

No. 9.—Report of the Station for 1886. 122 pp. *Edition exhausted.*

REPORT OF THE DIRECTOR.—Announcement. Publications of Station. Work of the Station for the year. Fertilizer Control and the Trade. One hundred and thirty-four Analyses of Fertilizers for the year. Home-made Fertilizers. Marls. Phosphates. The State Weather Service. The Laboratory and its Equipments. The Experiment Farm. Field Experiments. On Some Physical Properties of the Soil. Sunshine Record. Development of the Plant. Temperature of the Air and Soil. Index.

No. 10.—Report of the Station for 1887. 230 pp.

REPORT OF THE DIRECTOR.—Scope of the Experiment Station. Publications. Introduction: Record of Work During 1887. Laws Establishing the Station and Controlling the Trade in Fertilizers. The Fertilizer Control, and the Trade During 1887. 112 Analyses of Fertilizers for the Year. Marls, Limestones and Phosphates. Home-made Fertilizers and Composts. The N. C. State Weather Service During the Year. Experiment Farm. Study of Some Physical Properties of the Soil and of Meteorology in their Relation to Plant-growth. Index.

No. 11.—Report of the Station for 1888. 152 pp.

REPORT OF THE DIRECTOR.—Scope of the Work of the Station. Publications. Introduction. Information Given. Publications. Chemical Work. Fertilizer Laws. The Fertilizer Control. 114 Fertilizer Analyses for the Year 1888. Marls. Limestones and Phosphates. Home-made Fertilizers and Composts. Cotton-seed and Tobacco Products. Potable Waters. Co-operative Field Work. Field Experiments. Results of Co-operative Field Experiments 1888. Meteorological Work. Entomological Work. Experiment Farm Work. Botanical Work. REPORT OF THE AGRICULTURIST. RRPORT OF BOTANIST. —Purity and Vitality of Seeds. Lucerne. Financial Statement. Index.

No. 12.—Report of the Station for 1889. 194 pp. *Edition exhausted.*

REPORT OF THE DIRECTOR.—Introduction. Financial Statement. REPORT OF THE CHEMICAL DIVISION.—The Fertilizer Control. Fertilizers During 1889. 118 Analyses of Fertilizers. Tobacco Products for Fertilizing Purposes. Marls. Potable Waters. Pamunkey Marl Phosphates. REPORT OF DIVISION OF CO-OPERATIVR FIELD EXPERIMENTS.—Result of Co-operative Field Work During the Year. REPORT OF BOTANICAL DIVISION.—The Economic Value of Indigenous Wild Plants. Necessity of Selecting Grasses Suitable for Particular Soil. The Grass Garden. Experiments with Permanent Pasture Grasses. Lucerne. Quality of Seed Sold in North Carolina. REPORT OF HORTICULTURAL DIVISION. REPORT OF AGRICULTURAL DIVISION.—Hill-side Ditches. Cotton-seed Hulls and Meal for Fattening Purposes. TECHNICAL BULLETIN.—Seed Tests. REPORT OF METEOROLOGICAL DIVISION. Index.

No. 13.—Report of the Station for 1890. 22 pp.

REPORT OF THE DIRECTOR.—The Fertilizer Control Station. The Agricultural Experiment Station. REPORT OF AGRICULTURIST. REPORT OF BOTANIST. REPORT OF THE HORTICULTURIST.—Financial Statement.

No. 14.—Report of the Station for 1891. 32 pp.

REPORT OF THE DIRECTOR.—Published Work. The Unpublished Work. REPORT OF THE AGRICULTURIST. REPORT OF BOTANIST AND ACTING ENTOMOLOGIST. REPORT OF HORTICULTURIST. REPORT OF FIRST ASSISTANT CHEMIST. REPORT OF METEOROLOGIST.—Financial Statement.

H. ANNUAL REPORTS OF THE METEOROLOGICAL DIVISION.—CONSTITUTING THE STATE WEATHER SERVICE.

No. 1.—Report of the State Weather Service for 1887. 37 pp.

METEOROLOGICAL DIVISION DURING 1887.—Duties and Benefits of State Weather Service. Weather Signals. Signal Stations; list of 54. Observing Stations; list of 31. Weather Review of the N. C. Weather Service. Geographical. Annual Meteorological Summary for 1887 for North Carolina. Monthly Meteorological Summary for January, 1887. Ditto for February, March, April, May, June, July, August, September, October, November, December, 1887. Note.

No. 2.—Report of the State Weather Service for 1888. 27 pp. *Edition exhausted.*

METEOROLOGICAL DIVISION DURING 1888.—Signal Display Stations; 45 in number. Practical Value of Meteorological Work; quotations from letters of correspondents. The Collection of Various Meteorological Data. List of 28 Meteorological Observing Stations in 1888. Annual Meteorological Summary for North Carolina, 1888. Tables showing summary for State; for different Stations; highest, lowest and mean barometer; maximum, minimum and mean temperature; monthly precipitation, and number of rainy days; prevailing wind direction. General Remarks. Miscellaneous Phenomena. Weekly Weather Crop Bulletin. List of Crop Correspondents. Sample Bulletin. Resolutions.

No. 3.—Report of the State Weather Service for 1889. 37 pp. *Edition exhausted.*

METEOROLOGICAL DIVISION DURING 1889.—Signal Display Stations: 24. Special Frost Warning Stations; 43 in number. Weekly Weather Crop Bulletin. List of Crop Correspondents, 80. Sample of Bulletin. Collection of Meteorological Data. List of Meteorological Stations. Annual Meteorological Summary for North Carolina, 1889. Tables as in Report for 1888; also one showing comparisons for 1887, 1888 and 1889. General Remarks. Miscellaneous phenomena for the several months.

No. 4.—Report of the State Weather Service for 1890. 77 pp.

METEOROLOGICAL DIVISION DURING 1890.—Similar to the Report for 1889. In addition it contains summary for each month of the year 1890. Articles of Permanent Interest. The Climate of North Carolina. Tornadoes in North Carolina. Formation and Classification of Clouds. Origin of Cold Waves.

No. 5.—Report of the State Weather Service for 1891. 190 pp.

CLIMATOLOGY OF NORTH CAROLINA.—Including the Fifth Annual Report of the North Carolina State Weather Service. Brief History of the North Carolina State Weather Service. Report of Work Done During the Year 1891. Annual Meteorological Summary for 1891. Tables of Normals for the State. Index of Meteorological Observations Made in the State of North Carolina from 1820 to January 1st, 1892. Complete Tables of Monthly Mean Temperature and Monthly Rain-fall at Stations in North Carolina from 1820 to January 1st, 1892. Tornadoes in North Carolina from 1826 to 1892. Sketch of the Physical Geography of North Carolina. A General Sketch of the Climate of North Carolina. Index.

I. BIENNIAL REPORTS OF THE STATION.

No. 1.—Biennial Report for 1879 and 1880. 16 pp.

REPORT OF DIRECTOR.—Experiment Stations at Home and Abroad. The North Carolina Station. Equipment. Analyses. Sugar-beet Analyses. Marls, Minerals, Salts, etc. Investigations. The Publications of the Station.

No. 2.—Biennial Report for 1881–'82. 24 pp.

REPORT OF DIRECTOR.—Work of Station. Removal to Raleigh. Resume of Work Done in 1881–'82. Fertilizers During 1881–'82. Special Investigations. Collections. Correspondence of the Station. An Experiment Farm.

No. 3.—Biennial Report for 1883–'84. 14 pp.

REPORT OF DIRECTOR.—The Fertilizer Control. Special Investigation. Home-made Fertilizer. Phosphates. An Experiment Farm.

No. 4.—Biennial Report for 1885–'86. 20 pp.

REPORT OF DIRECTOR.—Poison Cases at the Station, and the Disadvantages of Conducting Them. Experiment Farm. The State Weather Service. The Fertilizer Control. General Work.

No. 5.—Biennial Report for 1887–'88. 39 pp.

REPORT OF DIRECTOR.—Scope of Work. Equipment. Officers. Chemical Work. Digest of Fertilizer Laws in Various States. Experiment Farm Work. Botanical Work. Entomological Work. Meteorological Work. Publications of the Station. Information Given.

No. 6.—Biennial Report for 1889–'90. 8 pp.

REPORT OF DIRECTOR.—Officers of the Station. Scope of work conducted. Fertilizer Control. Chemical Division. Agricultural Division. Horticultural Division. Botanical and Entomological Divisions. Meteorological Division. Value of the Station to Farmers. Benefits Increasing.